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In biodiesel we trust - Portland Tribune by Todd Murphy

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The Dodge Ram pickups lumber by. As do the Chevy Blazers. Small yachts with wheels. All spewing stuff from their exhausts. All gobbling down some version of petroleum that -- more than a few people around here will remind you -- will further enrich a multibillion-dollar corporation in Houston.

And eventually, of course, some sultan in the Middle East.

But on this small island amid the exhaust fumes -- at the corner of Southeast Seventh Avenue and Morrison Street in ever-sustainable Portland -- people are making what they perceive to be a stand for change.

They're putting mustard oil and canola-seed oil in their fuel tanks. Or cooking oil or animal fat. Or at least the liquid-fuel version of some or all of that.

Biodiesel.

"I said, 'Somebody's gotta start doing this,' " says Dr. Dan Berger, an emergency-room physician who lives in Southeast Portland. He says this as he fills up his 1984 Mercedes-Benz station wagon -- bought two years ago with his ex-wife specifically so they could run it on biodiesel -- here at Jay's Garage at Seventh and Morrison.

Jay Dykeman started selling biodiesel -- B99, the almost pure stuff, containing less than 1 percent petroleum diesel -- less than two years ago and now sells more of it than anyone else in the city, he says.

"We put it in and man, about a week after we put it in, the bloggers found out and boy, the word was out and the buzz was on," he says.

The fuel that he knew nothing about two years ago now makes up 50 percent to 60 percent of his total fuel sales.

And these days -- in Portland, at least -- Jay's is no longer a desolate island amid the gas fumes.

Biodiesel quickly has become big -- in a big way -- in the city.

More than 600 city vehicles -- especially those working in city bureaus overseen by Commissioner Randy Leonard, who has become a biodiesel evangelist over the past two years -- now run on biodiesel.

And in fewer than three months, many more Portlanders will be seeing a lot more of biodiesel. That's because on Aug. 15, every service station in the city that offers diesel will have to offer diesel partially made up of biodiesel.

The ordinance, forwarded by Leonard, also requires that all Portland gasoline contain at least 10 percent ethanol -- a renewable fuel distilled primarily from corn -- by Nov. 1.
Service station owners are less than happy about the mandate.

Many advocates for biodiesel, meanwhile -- who see the alternative fuel as a way to clean the air, combat global warming and promote national energy independence, all at the same time -- are very happy about it.

Portland may be the first city in the nation to have such a mandate, says Kevin Considine, the Sustainable Economy program director for the Oregon Environmental Council in Portland.

"This is the first municipality... saying: 'We're going to take control of this and do it,' " Considine says. "It shows that they've got a commitment to greenhouse gas reductions."

But -- besides wondering what biodiesel can do for greenhouse gas emissions --

Portlanders might be wondering a more basic thing. Like what is biodiesel?

Does it really do what it's advocates say it does?

Won't it hurt my vehicle? And why does it sometimes smell like french fries?

Here are some of the not-always-simple basics:

It cleans the air -- most of the time

To understand how cleanly biodiesel burns, you first have to understand that there are various kinds of biodiesel.

B5 biodiesel -- what the city ordinance will require that Portland service stations offer -- is mostly regular petroleum diesel. (It's made up of 95 percent petroleum diesel and5 percent biodiesel, thus B5.) B20 is 20 percent biodiesel.

B99 generally is about 99.9 percent biodiesel. (A federal tax credit that provides a significant subsidy to biodiesel producers has the strange requirement that some petroleum be blended into the biodiesel to receive the credit.)

Most studies and experts say that burning B99 or B100 produces significantly fewer hydrocarbons, carbon monoxide and particulate matter -- all forms of air pollution -- than petroleum diesel. Even B20, and to a lesser extent B5, produces fewer polluting materials.

At the time same time, B99, B100 and B20 all produce a bit more nitrogen oxide -- a component in smog -- than petroleum diesel. Some early studies seem to indicate those higher levels may decrease when the biodiesel is blended with the lower sulfur petroleum diesel that federal mandates have required since last fall.

Considine says using even B5 is "significantly better than using petroleum products."
But Kevin Downing, with the Oregon Department of Environmental Quality has some reservations.

Many newer gasoline-powered cars have emissions control devices that do a much better job of containing pollution than do older diesel vehicles, or even fairly new diesel vehicles, Downing says.

So if you have already have a diesel vehicle, it makes sense to use biodiesel rather than petroleum diesel. But if you have a late-model, gasoline-powered car, it's actually worsening air pollution to trade that in for a diesel vehicle just to use biodiesel.

"People have the idea that all they need to do to clean up a diesel engine is put biodiesel in it, and that's not the case," Downing says.

While many biodiesel advocates are less negative than Downing about biodiesel and air quality, he and they do agree that the biodiesel option soon will improve considerably. By 2009, all new diesel passenger vehicles will be required to have pollution control devices that in essence will make their emissions as clean as newer gasoline-powered cars. Then using biodiesel should lower their harmful emissions even more.

And biodiesel does much more to combat global warming than petroleum. That's because the plants used to make it take carbon dioxide -- which helps contribute to global warming -- out of the atmosphere.

But the larger point, Considine says, is that people concerned about air pollution, global warming and energy independence need to think about more than just the type of fuel they use. "It just doesn't make sense to have a Chevy Tahoe using biodiesel if it gets five miles to the gallon," he says.

A funny thing happened on the way to environmental nirvana

There is always, of course, the law of unintended consequences. And so there is with biodiesel.

One of the early and predominant ways biodiesel was and still is produced is through palm oil.

But to keep up with the demand for palm oil, planters in Malaysia, Indonesia and elsewhere are clearing large areas of tropical rain forests to make room for their palm plantations. That clearing is destroying the habitat for a range of endangered species, and it contributes to further global warming.

That problem is the main reason that in drafting his proposal that became the city ordinance, Leonard prohibited any of the biodiesel sold in Portland to come from palm oil.

But the palm oil problem only points to the larger issue -- that, in analyzing the benefits of any alternative fuel, you have to consider the environmental costs of planting, fertilizing, growing, harvesting and transporting the product that becomes the fuel.

"A tremendous amount of the value of biodiesel and ethanol is arguably diminished by the fact that you are increasing the consumption of fossil fuel to plant the corn, to grow it, to transport it," says Tim Hamilton, executive director of the Olympia, Wash.-based Automotive United Trades Organization, which represents about 400 service station owners in Washington.

Many experts suggest that cost-benefit ratio is more problematic with ethanol than with biodiesel. Still, Considine says, the farther away that raw product is from the biodiesel producing plants, "the less sustainable a business model that is."

Leonard hopes that the city can help deal with that issue -- at least in terms of the hundreds of thousands of gallons of biodiesel that city vehicles will use -- by entering into a contract with Eastern Oregon farmers to grow canola that will be used to produce biodiesel for the city vehicles.

It's not destroying rain forest, but will it destroy my engine?

Vehicle manufacturers generally have given their blessing to B5 biodiesel and even, for the most part, to B20 biodiesel.

But higher blends of biodiesel still can cause some problems, in older cars especially.

Engines in vehicles built after 1995 have synthetic rubber hoses and seals, which are not damaged by higher blends of biodiesel. But before that, the vehicles had natural rubber seals and hoses -- which can be damaged and eventually worn away by the biodiesel.

"The older the diesel vehicle, the more chance you have of service problems from using B99," Dykeman says. "It's a more aggressive fuel."

People with newer vehicles who start using purer blends of biodiesel -- generally above B20 -- also will need to change fuel filters and some other parts more often for a while. That's because the biodiesel acts as a solvent that cleans out some of the petroleum-caused deposits in the fuel tank and fuel line.

"Any time you go to higher blends of biodiesel, a lot more care has to be taken," says Don Holmes of the Portland Water Bureau, which since last fall has fueled what is now more than 100 large diesel vehicles with B99 biodiesel.

Holmes says using the B99 biodiesel also means some loss in power for the Water Bureau trucks and equipment, compared to when they used petroleum diesel.

"If you have a loaded dump truck going up the West Hills, our drivers are recognizing there's a power drop," he says. "The engines did not have the exact same amount of get up and go. But it's not like it's unsafe." And, he says, most drivers and operators are willing to give up a small amount of engine power for the environmental benefits.

Unlike petroleum diesel, various kinds of biodiesel also can turn to gel in cold weather. For that reason, Holmes says, the water bureau uses B50 biodiesel -- half petroleum diesel -- in the winter months.

Considine and others also say that some past performance problems relating to biodiesel generally have been fuels that weren't tested using standards from ASTM International, formerly known as the American Society for Testing and Materials.

Biodiesel fuel can be made fairly easily, with relatively inexpensive equipment, from a range of materials or even used restaurant grease -- french fry grease, for example. And it can be made for 80 cents a gallon or less.

But "somebody who brews things in their backyard is not likely to be going through the testing needed" to meet ASTM standards, Considine says. "That's part of the problem, I think, that some of the (biodiesel) co-ops run into every once in a while."

The marketplace decides -- with a governmental push

Paul Romain, executive director of the Oregon Petroleum Association, says service station owners don't mind biodiesel.

"We love biodiesel. We're all for anything to encourage the production of it," he says. "We don't like mandates. We think mandates are bad."

The Portland ordinance mandating that almost all diesel fuel sold in the city be at least B5 biodiesel -- and mandating that all gasoline sold in the city contain at least 10 percent ethanol by Nov. 1 -- is unusual.

(The ordinance has one exemption, informally called the "Jubitz exemption," after officials with the Jubitz truck stop on Interstate 5 complained that truckers would be wary of biodiesel and forcing them to sell only that would severely hurt their business. The exemption allows any station that sells B20 biodiesel to also sell 100 percent petroleum diesel.)

Romain said the normal reaction in the marketplace could produce significant demand for biodiesel that station owners would then be happy to supply.

Even Mark Fitz, an executive with Portland-based StarOilco, a big proponent of biodiesel and a "huge fan of Randy Leonard," said: "I'm really kind of concerned with how quickly we moved to mandates. â€¦ A 5 percent (biodiesel) blend across the city of Portland -- that's a lot of vegetable oil. That's a lot of acreage for farmers to grow with short notice."

But Leonard says that the mandate was necessary to give a commitment to Eastern Oregon farmers -- with whom he began talking about a partnership last fall -- that there would be a large demand for their canola if they made a decision to grow significant quantities of it.

"We have this opportunity to go to the Pendleton Grain Growers' Association and sign a contract for fuel," he says. "None of that happens unless you have a mandate -- because it gives them breathing room." Leonard hopes that the contract, which he hopes will be signed within the next month or so, will give the farmers a guaranteed market, with a guaranteed price. Leonard projects that price will be about 14 cents per pound of canola -- which translates into about $3.25 per gallon for the biodiesel.

Do we only consume what's good for us -- at any cost?

For many of the people who now are big advocates and users of biodiesel fuel, price is secondary.

And for the first time in a very long time -- maybe ever -- they are paying less for biodiesel than gasoline users are paying for their gasoline. B99 from Portland's Carson Oil, one of Oregon's largest biodiesel distributors, was $2.94 per gallon on Monday.

Gasoline across the city was roughly $3.49. Petroleum diesel from Carson was $2.86.
But Hamilton, representing the Washington state station owners, said even that price of biodiesel comes after huge tax breaks that give it a government subsidy.

And he questions whether a large enough group of people is willing to pay significantly more for biodiesel over the long run.

"The public always reacts to price," he says.

But the biodiesel price has not changed for more than a year, Dykeman says. It isn't subject to the periodic or seasonal price hikes that petroleum often is. And, who knows, advocates say -- in a year $2.94 per gallon for fuel might seem even cheaper.

Meanwhile, Leonard points out, changing from a gasoline-powered engine to a diesel engine saves money in other ways; vehicles with diesel engines get about 30 percent more miles per gallon.

"Here's my take," says Holmes of the water bureau. "Biodiesel is a very positive thing for the environment when it is done locally. And it should be viewed as a transition step until the next form of (vehicle) engine is basically developed. And it opens people's minds to the fact that something other than petroleum can fuel our energy needs. That's the biggest benefit in my mind."

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